solutions were degassed by the freezing method. The formation of hydrazyls in electrochemical oxidation of the original compounds can be depicted by the scheme:

$$Ph_2N\text{-}NH\text{-}R + OH^- \rightleftarrows Ph_2N - \bar{N} - R + H_2O,$$

$$Ph_2N - \bar{N} - R \rightleftarrows Ph_2N - \dot{N} - R + e.$$

Thus, the authors have shown that electrochemical oxidation as well as electrochemical reduction of compounds of the diphenylpicrylhydrazine type lead to the formation of free radicals, the properties and structure of which can be studied by the electron paramagnetic resonance method. [JPRS]

SUB CODE: 07 / SUBM DATE: 21Jun65 / ORIG REF: 006 / OTH REF: 004

ACC NR: AP7012406

SOURCE CODE: UR/0020/66/170/005/1124/1125

AUTHOR: Valitova, F. G.; Ryzhmanov, Yu. M.

ORG: Kazan Physicotechnical Institute, AN SSSR (Kazanskiy fiziko-tekhnicheskiy institut AN SSSR); Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, AN SSSR (Institut organicheskoy i fizicheskoy khimii AN SSSR)

TITLE: Electron paramagnetic resonance in solutions of some free radicals in the thiophosphonehydrazyl series

SOURCE: AN SSSR. Doklady, v. 170, no. 5, 1966, 1124-1125

TOPIC TAGS: electron paramagnetic resonance, hydrazine compound

SUB CODE: 07

ABSTRACT: The authors studied the isotropic hyperfine structure of the electron paramagnetic resonance spectra of synthesized diphenylthiophosphonehydrazines:

$$(C_6H_5)_2-N-NH-P(R)_2, \text{ где } R=C_6H_5; OC_6H_5; OC_2H_5.$$
$$\|$$
$$S$$

Card 1/2

UDC: 541.67 0432 7336

ACC NR: AP7012406

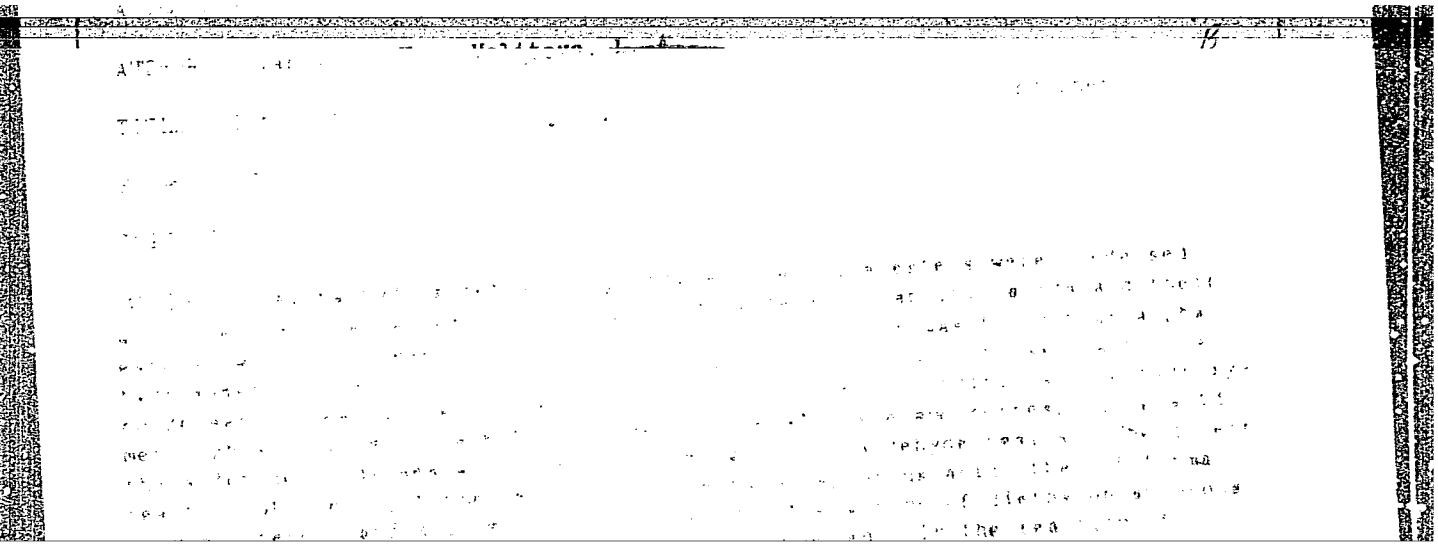
Solutions of these hydrazines were prepared in chloroform and oxidized with PbO_2 in previously evacuated ampules. The measurements were made on an RE-1301 spectrometer at room temperature. A five-component hyperfine spectrum was observed for all radicals, which may be explained on the basis of interaction between an unpaired electron and two nuclei of nitrogen $N^{14}(I=1)$ in hydrazine. The constant A in the term of the Hamiltonian $A\vec{I}\vec{S}$ which describes electron-nuclear contact interaction is determined and the results are tabulated. It was experimentally found that substituents have an insignificant effect on the hyperfine spectra. The experimental data show a reduction in the sum of constants A_1+A_2 to little more than half the value observed in DPPG and its derivatives. A probable reason for this decrease is reduction in the admixture of the s-state to the wave function of the unpaired electron for a b-atom of nitrogen. Ratios of $A_1/A_2=1$ were observed for the phenyl, oxyphenyl and oxyethyl radicals which indicates complete conjugation of p_π-orbitals for N_α-N_β. This assumption is confirmed by the planar distribution of all σ-orbitals in N_α-N_β. This article was presented by Academician B. A. Arbuzov on 31 January 1966. The authors thank B. M. KOZYREV and Yu. V. YABLOKOV for participating in discussion of the results. Orig. art. has: 2 formulas and 1 table. [JPRS: 40,422]

2/2

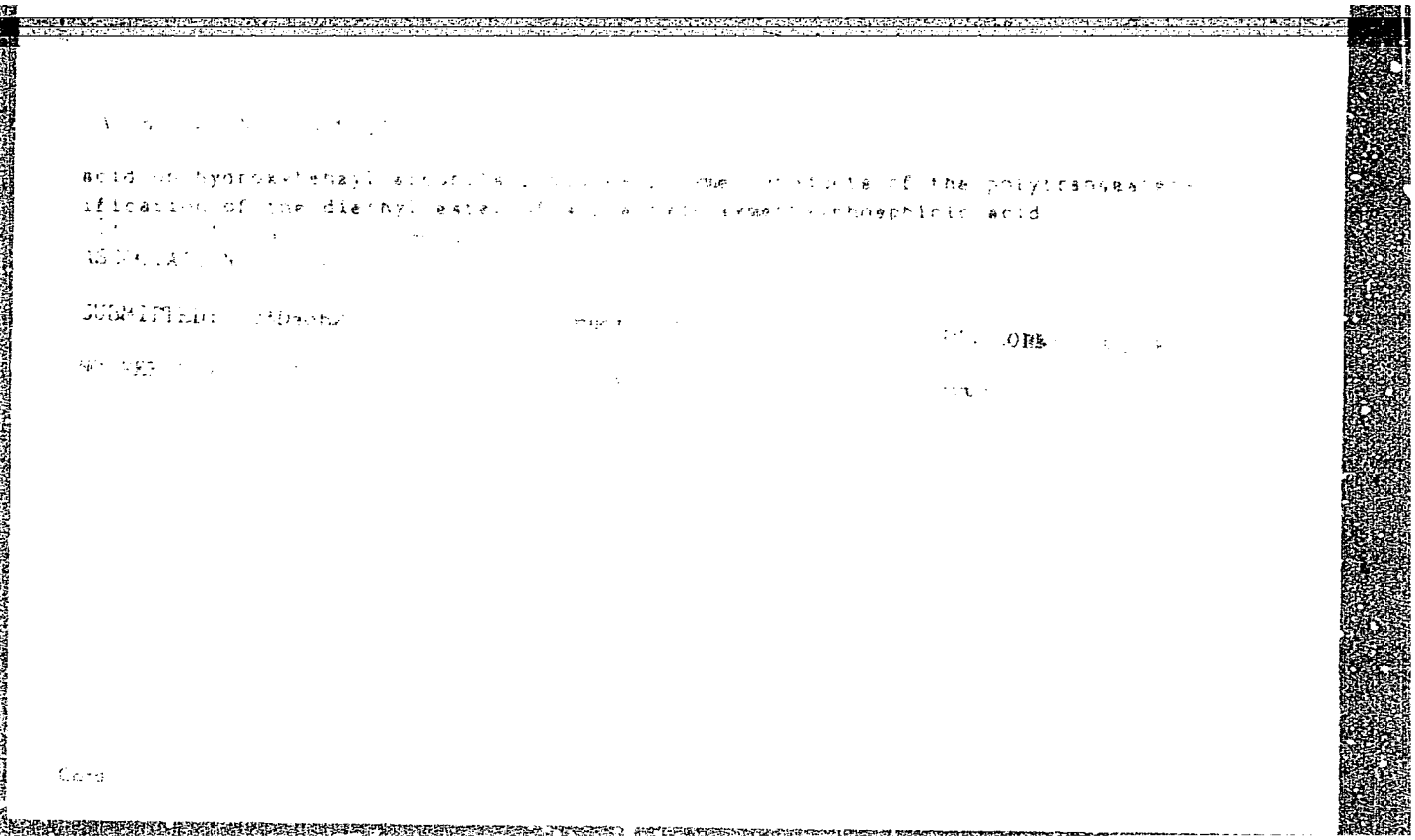
IVANOV, B.Ye.; VALITOVA, L.A.

Synthesis of substituted benzylphosphinic acids. Izv. AN SSSR. Otd.khim.nauk no.6:1049-1052 Je '63. (MIRA 16:7)

1. Institut organicheskoy khimii AN SSSR, Kazan'.
(Phosphinic acid) (Rearrangements (Chemistry))



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858510004-9"



VALITOVA, M. S. Cand Med Sci -- (diss) "On Age-related Changes in the Content of Myoglobin, Hemoglobin, and Iron in the Organism of Dogs." Alma-Ata, 1957. 10 pp 21 cm. (Kazakh XXXXXXXXX Medical Inst im V. M. Molotov), 300 copies (KL, 26-57, 112)

VALITOVA, M.S.

VALITOVA, M.S.

Changes with age in the amount of myoglobin, hemoglobin, and iron in the organism of dogs [with summary in English]. Ukr.biokhim. zhur. 29 no.4:419-427 '57. (MIRA 11:1)

1. Kafedra biokhimii Kazakhskogo meditsinskogo instituta, Alma-Ata.
(MYOGLOBIN) (HEMOGLOBIN) (IRON IN THE BODY)

VALITOVA, M.S., DYUKOVA, A.L., KULOVSKAYA, N.I., PANINA, Z.A.,

RESHETNIKOVA, M.I., SULAYEVA, L.S., UTESHEV, A.B., VERBOLOBICH, P.A.,

POLOSUKHINA, T. YA., KAIPOVA, Z.K., (USSR)

"Special Aspects of the Metabolism of Some Substances in Radiation Desease in Dogs."

Report presented at the 5th Int'l. Biochemistry Congress, Moscow, 10-16 Aug 1961.

47/2402

Z/011/62/019/011/001/003
E073/E535

AUTHORS: Polosukhina T. V., Valitova M.S. et al.

TITLE: Influence of X-ray irradiation on the metabolism of lipides in the liver of a dog

PERIODICAL: Chemie a chemická technologie. Přehled technické a hospodářské literatury, v.19, no.11, 1962, 496 abstract Ch 62 6690 (Vopr. med. Khim. v.8, no.2.1962, 192-199)

TEXT: The serum of venous blood showed an increased concentration of neutral fats, phosphor lipides and cholesterol the third day after a single irradiation of the dog with an X-ray dose (500 roentgen). The increase in the concentration of ketones in the blood in the case of radiation sickness is caused by the formation of ketones in the liver. The content of glycogens in the liver tissue decreased, whilst the content of neutral fats and cholesterol increased.
3 tables, 46 references.

[Abstracter's note: Complete translation.]

Card 1/1

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

The Nizhneterbagatai manganese deposit. A. S. Valitskaya. *Razvedka Nedr* 1937, No. 3, 13-14.—The ore contains MnO_2 11.37-17.85, Mn 7.10-11.11, SiO_2 60.77-61.00, Al_2O_3 13.73-16.21, Fe_2O_3 1.43-4.30, S 0.02, CaO 1.11-0.63 and MgO 0.63-1.16%.

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VALITSKIY, I.V.

VALITSKIY, I.V., redaktor; IOANNESYAN, R.A., redaktor; KOPYSITSKIY, P.I., redaktor; GAUMIN, I.M., redaktor; TROFIMOV, A.V., tekhnicheskiy redaktor.

[Improving the quality of cutting bits; collection of articles] Povyshenie kachestva izgotovleniia sharoshechnykh dolot; sbornik statei. Moskva, Gos.nauchno-tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1954. 93 p. (MLRA 8:4)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut mekhanizatsii i organizatsii truda v neftyanoy promyshlennosti. Byuro tekhniko-ekonomicheskoy informatsii.
(Boring machinery)

VALITSKIY, V., inzh.

Tuning of the TsRS radio station without instruments. Pozh. delo 8 no.9:24 S '62. (MIRA 16:11)

VALITSKIY, V. P. AND V. O. ARUTIUNOV

Elektroizmeritel'nye pribory; ustroistvo, montazh i obsluzhivanie. Izd. 2. Leningrad, Gosenergoizdat, 1949. 199 p. illus.

Electric meters; working principles, adjustment and maintenance.

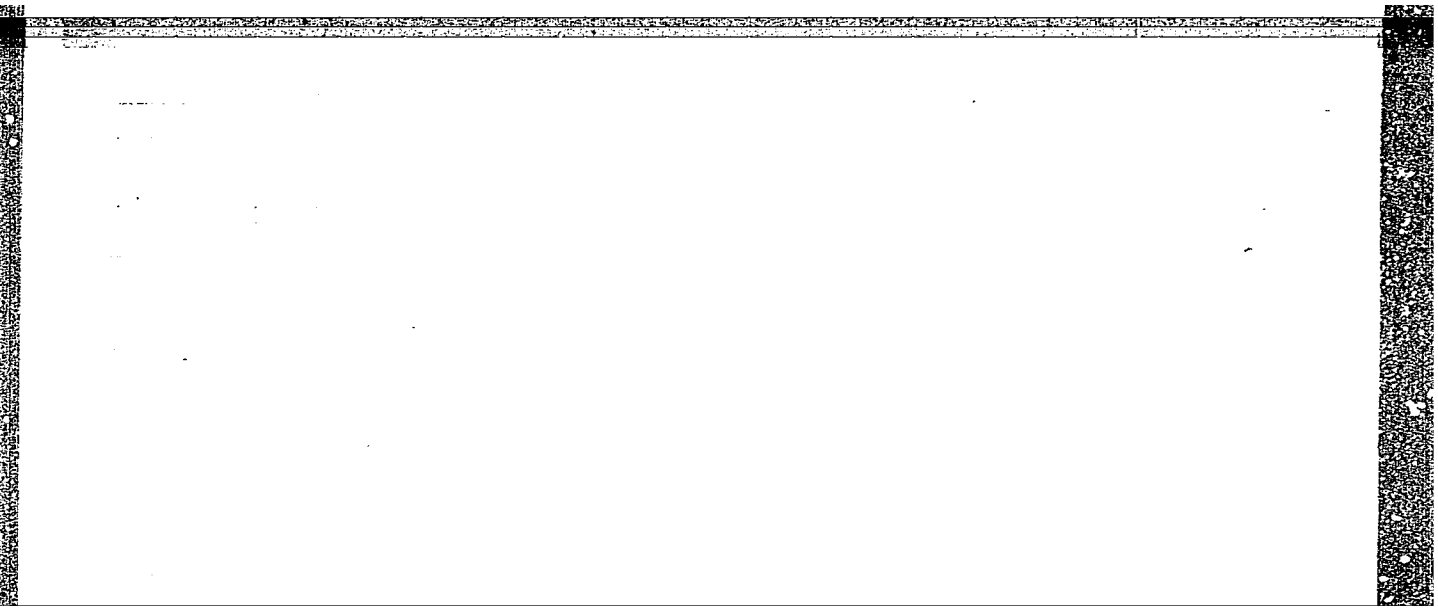
DLC: TK393.A7 1949

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

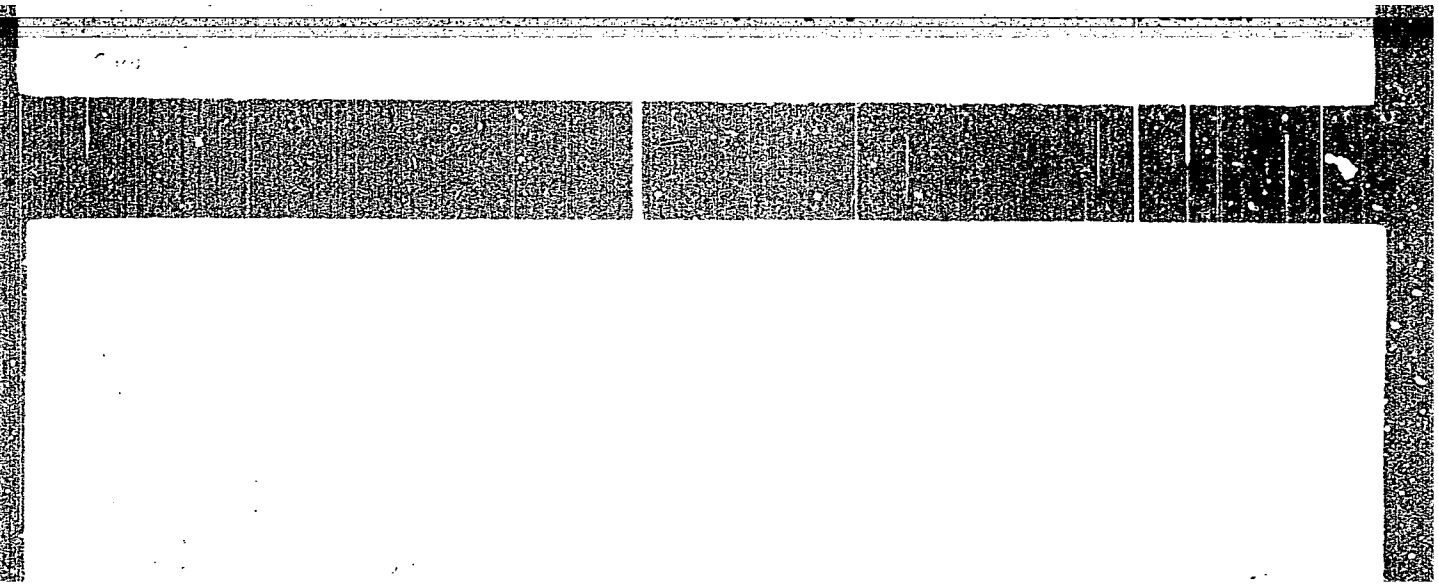
VALITSKIY, V.P. and ARUTYUNOV, V.O.

"Electical Measuring Instruments". (Elektroizmeritel'nyye prebery), Gosenergoizdat, Leningrad/Moscow, 1949, 199 pp, 7 rubles 50 kopeks,

SO: W-14151 11 Oct 1950.



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858510004-9"



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858510004-9"

Card

L 07411-67 EWT(m)/EWP(w)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JH

ACC NR: AP6032848 SOURCE CODE: UR/0020/66/170/003/0540/0543

AUTHOR: Belyakov, L. V.; Valitskiy, V. P.; Zlatin, N. A.; Mochalov, S. M.

ORG: Physical-Technical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

TITLE: The melting of lead in a shock wave

SOURCE: AN SSSR. Doklady, v. 170, no. 3, 1966, 540-543

TOPIC TAGS: shock wave, x ray photography, high speed camera, pressure distribution, specific volume, thermodynamic analysis

ABSTRACT: A study was made of adiabatic heating of lead to the fusion point during impact shock loading. Thermodynamic analysis of melting in a shock wave is presented and schematic drawings are given of pressure as a function of specific volume and distance. Thermodynamic equations are given for the specific work done by pressure to $\alpha\lambda$, where λ is the specific heat of fusion and α is a coefficient which depends on the shock pressure. [illegible] shock wave results in an entropy increase and a change in pressure distribution. These analytical results were checked by shock wave experiments on lead, in which high speed x-ray photographs were taken of the fractured ends of lead sheets. Impact velocities ranged from 1085 to 1570 m/sec. A sharp change in fracture appearance occurred at an impact velocity of 1250-1300 m/sec; this coincided

Card 1/2

UDC: 531.66.001.11

L 07[illegible]

ACC NR: AP6032848

3

with a mass velocity of 700 m/sec. It is known that melting of lead occurs in a shock wave when the mass velocity becomes 650-700 m/sec. This velocity corresponded to a pressure of 230-250 x 10^3 atm and to a 22-23% change in specific volume. X-ray photographs are also shown of fracture in 1 mm thick lead sheets at an impact velocity of 1340 m/sec, during time intervals of 15, 30, 45, and 54 μsec. These tests show that the difference between the speed of the split flange (initial fracture condition) and the residual mass of the "whiskers" (final fracture condition) was 3%, verifying the specific work equation. Sheet thicknesses ranging from 0.5 to 3 mm were tested 15 μsec after the moment of fracture at 1340 m/sec. Some of the sheets were covered with 0.05 mm thick aluminum foil during testing. The use of the foil changed the spacings of cleavage "whiskers". These experiments confirmed that the originally postulated position of shock adiabates of lead in the solid and two-phase conditions was correct. A calculation of the relaxation time from the data gave 3 x 10^{-7} sec. Presented by Academician B. P. Konstantinov on 13 December 1965. Orig. art. has: 4 figures, 2 formulas.

SUB CODE: 11/ SUBM DATE: 27Nov65/ ORIG REF: 008/ OTH REF: 001

Card 2/2 pla

L 07367-67 EWT(d)/EWT(l)/EWT(m)/EWP(c)/EWP(w)/EWP(t)/ETI IJP(c) JD/EM/JH
ACC NR: AP6033425 SOURCE CODE: UR/0057/66/036/010/1875/1882

AUTHOR: Belyakov, L. V.; Valitskiy, V. P.; Zlatin, N. A.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR) 54 B

TITLE: Thermal effects accompanying an impact on a metal half-space

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 10, 1966, 1875-1882

TOPIC TAGS: impact, impact test, ~~impact~~ thermal effect, impact effect modeling, metal test

ABSTRACT: The article discusses experiments aimed at expanding the range of applicability of criteria to parallel the effects between low-speed impact of one pair of materials to similar effects for a pair of different materials at a higher, experimentally unattainable, speed. The upper limit of the interval for which the modeling curve will yield correct results is discussed at some length. The concept of "threshold speed" is introduced. Threshold speed corresponds to the discontinuity of the modeling curve caused by melting of the metals in question and is estimated at about 0.7 to 1 of the velocity of sound in the given metal. If the threshold speed is correctly determined, the modeling curve should yield accurate data on impact results for speeds at least 3 to 3.5 times higher than the experimental. Experiments were conducted in which blocks of lead, tin, and cadmium were impacted by aluminum disks 4 mm thick and 15 mm in diameter at speeds up to 24 km/sec.

Card 1/2 UDC: 531.66.001.11

L 07367-67
ACC NR: AP6033425

The results were in good agreement with calculated threshold speeds. A marked difference was observed in the cavities formed at impact speeds of about 1 km/sec and those obtained at about 1.7 to 1.8 km/sec, the latter showing conical deepening with evidence of fusing of the target. A special high-speed x-ray investigation of the process at impact speeds up to 2.4 km/sec confirmed the ejection of molten material at speeds of 1.7 to 1.8 km/sec and higher. Further confirmation of the threshold speed magnitudes was obtained in a special series of x-ray tests in which a copper cylinder was made to hit thin (about 0.05 of the diameter of the cylinder) sheets of lead, tin, and cadmium. The threshold speeds for metals with higher melting point were calculated on the assumption that the heating up of the target by the impact is a function of the mass speed developed by the shock load and obeys the same law for all metals. The results of calculations for a number of metals confirm the assumption and agree with experimental data from various sources. Reference is made to the experiments of A. C. Charters (Sci. Amer. v. 203, no. 4, 1960, 128), whose results could be extrapolated for impact speeds of 30 to 50 km/sec. Orig. art. has: 6 figures.

SUB CODE: 20/ SUBM DATE: 18Oct65/ ORIG REF: 012/ OTH REF: 007/ ATD PRESS: 5101

Card 2/2 afs

20-6-5/47

AUTHOR: FISHMAN,K.M., VALITSKIY,Yu.N.

TITLE: On the Applicability of the Fredholm Theory to Some Linear Topological Spaces (O primenimosti teorii Fredgol'ma k nekotorym lineynym topologicheskim prostranstvam)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol.117, Nr 6, pp 943-946 (USSR)

ABSTRACT: Let B_r be a real or complex Banach space depending on a parameter r ($\alpha < r \leq \beta$) and satisfying certain further conditions. In the set $\mathfrak{A}_r = \prod_{r' \leq r} B_{r'}$, ($\alpha < r \leq \beta$) let the addition and convergence be defined such that $\mathfrak{A}_r$ becomes a complete linear topological space. Let A be a linear operator which maps B_r into B_r and which is independent of r. In every $\mathfrak{A}_r$, A induces a linear continuous operator not depending on r. The author shows that if the Fredholm theory can be applied to A in every B_r, then also in the spaces $\mathfrak{A}_r$ all Fredholm theorems are valid.

Card 1/2 4 Soviet references are quoted.

On the Applicability of the Fredholm Theory to Some Linear Topological Spaces 20-6-5/47

ASSOCIATION. Chernovtsy State University (Chernovitskiy gosudarstvennyy universitet)
PRESENTED: By V.I.Smirnov, Academician, 21 June 1957
SUBMITTED: 20 June 1957
AVAILABLE: Library of Congress

Card 2/2

SOV/21-59-3-3/27

16(1)
AUTHOR: Valitskiy, Yu.N.

TITLE: Functions, Analytical with Respect to Some Integro-Differential Operators, and Their Application (Funktsii analiticheskiye otnositel'no nekotorykh integro-differentsial'nykh operatorov i ikh primeneniye)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 3, pp 237-240 (USSR)

ABSTRACT: The object of this article is to accomplish an approach generalizing a theory of functions analytical with respect to a conventional operator of the n-th order, and proving that two such operators are equivalent, so as to make it fit for use in cases with one type of integro-differential operators. Step by step, considering and proving eight theorems, the author established the facts which hold in the theory of ordinary analytical functions and are fit to serve for a number of functions that can be expanded into series. The terminology employed

Card 1/2

Functions, Analytical with Respect to Some Integro-Differential Operators, and Their Application

is standard mathematical. There are 6 Soviet references.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovtsy State University)

PRESENTED: November 29, 1958, by B.V. Gnedenko, Member of the AS UkrSSR

VALITSKIY, Yu.N.; BEREZOVSKIY, N.I.

First Abelian theorem for certain functional series. Vop. mat. fiz. i teor. funk. no.1:12-17 '64. (MIRA 18:2)

L 10877-67 EWT(1) SCTB DD
ACC NR: AP6035944 (N) SOURCE CODE: UR/0413/66/000/020/0214/0214

INVENTOR: Grebennikov, N. P.; Valiulin, A. Z.

ORG: none

TITLE: Training device for swimmers. Class 77, No. 187577

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 214

TOPIC TAGS: training equipment, training, potentiometer, liquid flow, hydraulic pump

ABSTRACT: An Author Certificate has been issued for a training device for swimmers. It is a basin with a closed running-water channel containing a hydraulic pump, which controls the flow rate in the basin. The stream's rate of flow is regulated by a flow sensor attached to the swimmer and consisting of a small cable joined to a coil with a spring which activates the slide bar of a potentiometer regulating the rpm of the pump's motor. Flor distribution grids insure an even rate of water flow through its cross section and are situated at the entrance and exit of the basin. Orig. art. has: 1 figure. [Translation] [N-67-2]

Card 1/2 UDC: 685.734

L 10877-67

ACC NR: AP6035944

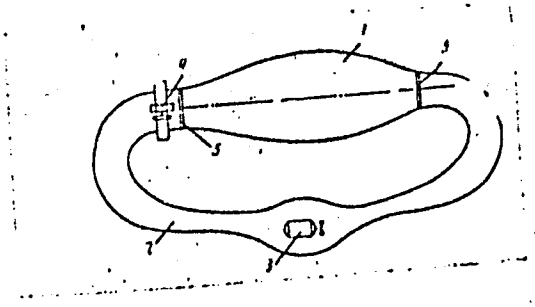


Fig. 1. Training device for swimmers. 1—Basin; 2—water flow channel; 3—hydraulic pump; 4—flow sensor; 5—flow distribution grids

SUB CODE: 13, 06/ SUBM DATE: 15Mar65/

Card 2/2

VALIULINA A.Z. VALIULINA, A.Z.

TOMASHOV, N.D.; KIPARISOV, G.N.; VALIULINA, A.Z.; KOROTKOVA, K.S.

Apparatus for obtaining polarization curves. Trudy Inst. Fiz.Khim., Akad. Nauk S.S.S.R. 3, Issledovaniya Korrozii Metal. No.2, 74-5 '51. (MLRA 4:10)
(CA 47 no.16:7831 '53)

VALIULINA, A. Z.

USSR/Chemistry - Corrosion

Mar 52

"Ozone as a Cathodic Depolarizer in Processes of Metal Corrosion," N. D. Tomashov, A. Z. Valiulina, Inst of Phys Chem, Moscow, Acad Sci USSR

"Zhur Fiz Khim" Vol XXVI, No 3, pp 417-424

In a weakly alk soln (p_H=9.2)ozone is not reduced directly: decompg at the cathode, it produces supersatn with oxygen and increases the limiting diffusion current. In acidic electrolytes, at much more pos potentials than the potential of oxygen ionization, ozone is directly reduced under assimilation of 2 electrons. The limiting diffusion current is higher in an acidic than alk medium, because ozone is more stable in acidic soln. The authors' assumption that ozone is a corrosion accelerator because of its cathodic depolorizing effect has been confirmed experimentally. In the expts described, Cu, Fe, and Al were as cathodic materials. The problem of corrosion caused by ozone is of importance at high voltage installations.

PA 213T34

VALIULLINA, F.G.

Electrophoresis using the vitreous body in treating a trachomatous panmus and a persistent turbidity of the cornea. Nauch. trudy Kaz. gos. med. inst. 14:383-384 '64. (MIRA 18:9)

1. Kafedra glaznykh bolezney (zav. - doktor med. nauk A.P. Nesterov) Kazanskogo meditsinskogo i[illegible].

Valiulina, F.M.

USSR /Chemical Technology. Chemical Products and Their Application I-16

Treatment of natural gases and petroleum. Motor fuels. Lubricants

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31897

Author : Rumyantseva Z. A., Valiulina F.M., Chayko V.P.

Inst : Academy of Sciences Tadzhik SSR

Title : Chemical Nature of High Molecular Components of High Sulfur Petroleum. Communication I. Analysis of the Components of Petroleum of the Kzyl-Tumshuk Deposit

Orig Pub: Tr. AN TadzhSSR, 1955, 41, 59-68

Abstract: By methods of GrozNII and adsorption chromatography on silica gel, a study was made of the

Card 1/4

USSR /Chemical Technology. Chemical Products and Their Application I-16

Treatment of natural gases and petroleum. Motor fuels. Lubricants

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31897

groupwise hydrocarbon composition of ligroin-kerosene and oil fractions, and also of the hydrocarbon portion, from which gasoline had been removed, of high-sulfur, Tadzhik petroleum of the Kzyl-Tumshuk deposit, containing about 5% S and 42% of tarry substances. On the basis of fraction yields of the adsorption analysis and their refractive indices, graphs were plotted which show the quantitative distribution of different classes of hydrocarbons in the products under study, and on the basis of determinations of the molecular weight values and elemental composition,

Card 2/4

USSR /Chemical Technology. Chemical Products and Their Application

I-16

Treatment of natural gases and petroleum. Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31897

empirical formulas and formulas of homologous series of the fractions were calculated. It is shown that the principal components of the fractions under study are aromatic and sulfur compounds (amounting together to 50-97%); the content of sulfur compounds increases with rising boiling point of the fractions, and on transition from monocyclic aromatic compounds to bicyclic aromatic compounds, and reaches a maximum in the case of separation of a sulfur concentrate. By a ring analysis of the methane-naphthene portion of the fractions it was shown that paraffin hydrocarbons and chains

Card 3/4

USSR /Chemical Technology. Chemical Products and Their Application I-16

Treatment of natural gases and petroleum. Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31897

predominate, and monocyclic naphthenic hydrocarbons are present in the fractions up to 400°, and bicyclic naphthenic hydrocarbons in the 400-500° fraction. The Kzyl-Tumshuk petroleum is a rich natural source of organic sulfur compounds.

Card 4/4

RUMYANTSEVA, Z.A.; VALIULINA, F.N.

Chemical nature of components of high molecular weight of highly sulfurous petroleum. Report no. 2. Analyzing the components of Khaudag petroleum. Izv. Otd. est. nauk AN Tadzh. SSR no.16:15-28 '56. (MLRA 10:4)

1. Institut khimii AN Tadzhikskoy SSR.
(Khaudag--Petroleum--Analysis)

KARAVAYEV, N.M.; RUMYANTSEVA, Z.A.; VALIULINA, F.M.; BURYAKOVA, E.P.

Semicoking of slightly caking and noncaking coal of the Fan-Yagnob deposit. Izv. Otd. est. nauk AN Tadzh. SSR no.3:27-38 '59. (MIRA 15:5)

1. Institut khimii AN Tadzhikskoy SSR.
(Ayni District—Coal—Carbonization)

VALIULLIN, A.V.; GIL'MANOV, I.G.; KHASANOV, Kh.Kh.; KOROL'CHUKA, V.M., red.; LODVIKOVA, A.S., red. izd-va; NABIULLINA, R.S., tekhn. red.

[Fruit culture of the Tatar A.S.S.R.] Sadovodstvo Tatarskoi ASSSR. Kazan', Tatarskoe knizhnoe izd-vo, 1960. 279 p. (MIRA 14:9)
(Tatar A.S.S.R.—Fruit culture)

AYUPOV, Kh.V., kand. veter. nauk; IVANOVSKIY, S.A., kand. veter. nauk; SAFIULLIN, G.K.; VALIULLIN, S.M., veterinarnyy vrach; UPORNIKOV, M.V., veterinarnyy vrach; FROLOV, V.P., zootekhnik

Veterinary helminthological evaluation of the year-round pen system of keeping sheep. Veterinariia 40 no.6:49-52 Je '63. (MIRA 17:1)

1. Bashkirskaya nauchno-proizvodstvennaya veterinarnaya laboratoriya (for Frolov). 2. Direktor Miyakinskogo sovkhoza Bashkirskoy ASSR (for Safiullin).

VALIULLINA, F.G., assistent

Tissue therapy for trachomatous panmus. Oft. zhur. 14 no.2:118-121 '59. (MIRA 12:7)

1. Iz kafedry glaznykh bolezney (zav. - dotsent A.S. Veys) Kazanskogo meditsinskogo instituta.
(CORNEA--DISEASES) (TISSUE EXTRACTS)

KAMCHATNOV, V.P.; VALIULLINA, F.G.; SAMOYLOVA, A.I.

Study of working conditions and incidence of disease in working with methanol in the "dark shops" of the V.V. Kuibyshev Chemical Factory. Kaz. med. zhur. 41 no.3:78-82 My-Je '60. (MIRA 13:9)

1. Iz kafedr gigiyeny truda (zav. - dotsent V.P.Kamchatnov) i glaznykh bolezney (zav. - dotsent A.S. Veys) Kazanskogo meditsinskogo instituta.
(METHYL ALCOHOL--PHYSIOLOGICAL EFFECT)
(CHEMICAL INDUSTRIES--HYGIENIC ASPECTS)

VALIULLINA, F.G., kand.med.nauk

Microsymptoms in methyl alcohol poisoning. Vest.oft. no.3:62-64 '61. (MIRA 14:9)

1. Kafedra glaznykh bolezney (zav. - dotsent A.S. Voys) Kazanskogo meditsinskogo instituta.
(METHANOL—TOXICOLOGY)

RADBIL', O.S., prof.; VALIULLINA, R.K.; KOVALERCHIK, E.I.; PEREL'SHTEYN, S.B.

Clinical aspects and treatment of chronic nonspecific ulcerative colitis. Terap.arkh. no.8:11-16 '62. (MIRA 15:12)

1. Iz 2-y kafedry terapii (zav. - prof. O.S. Radbil') Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey i 2-y infektsionnoy bol'nitsy (glavnyy vrach E.I. Kovalerchik).
(COLITIS)

VALIULLINA, R. I.

RYABUKHIN, G.Ye.; VALIULLINA, R.T.

Some new data concerning the facies and lithology of Jurassic and lower Cretaceous sediments of the Bolsherechye deep hole region in the West Siberian Lowland. Dokl. AN SSSR 110 no.6: 1065-1069 O '56. (MLRA 10:2)

1. Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva. Predstavleno akademikom S.I. Mironovym.
(Siberia, Western--Geology, Stratigraphic)

VALIULLINA, R.T.; CHERNOMORSKIY, V.N.

Correlation of the lower Carboniferous terrigenous stratum of northwestern Bashkiria based on the palynological and mi[illegible]logical analysis of clayey rocks. Dokl. AN SSSR 139 no.5:1181-1184 Ag '61. (MIRA 14:8)

1. Predstavleno akademikom D.V. Nalivkinym.
(Bashkiria—Geology, Stratigraphic)

VALIUS,N.A.

[Photography in darkness and fog] Fotos"emka v temnote i v tumane. Moskvam Gostekhizdat, 1948. (MLRA 9:3)
(Photography)

1. VALIUZHENICH, A.

2. USSR (600)

4. Argentina - Social Conditions

7. Beneath the yoke. Mol. kolkh. 20, no. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

USMANOV, Kh.U.; YUL'CHIBAYEV, A.A.; MUKHAMEDZHANOV, R.; GORDIYENKO, A.A.; PATENKO, A.A.; DORDZHIN, G.S.; VALIYEV, A.

Radiation-induced polymerization of vinyl fluoride. Khim. i fiz.-khim. prirod. i sint. polim. no.1:205-206 '62 (MIRA 18:1)

1. Chlen-korrespondent AN UzSSR (for Usmanov).

ACCESSION NR: AP4004[illegible]

AUTHOR: Usmanov, Kh. U.; Yul'chibayev, A. A.; Mukhamedzhanov, R.; Gordiyenko, A. A.; Valiyev, A.; Patenko, A. A.; Dordzhin, G. S.

TITLE: Radiation-induced polymerization of vinyl fluoride

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 5, no. 8, 1963, 1277

TOPIC TAGS: fluorocarbon polymer, poly(vinyl fluoride), poly(vinyl chloride), Ftoroplast-4, Teflon polytetrafluoroethylene, radiation-induced polymerization, [illegible] radical polymerization

ABSTRACT: The higher heat, chemical, and light resistance of poly(vinyl fluoride) (PVF) as compared to poly(vinyl chloride) and the possibility of substituting PVF in certain cases for Ftoroplast-4 (polytetrafluorethylene, or Teflon) have prompted a study of the synthesis of PVF by radiation-induced polymerization. The monomer was prepared from pure HF and C_2H_2, separated from excess HF and [illegible] and [illegible] in sealed ampoules with [illegible] rays from a Co^{60} source at a dose [illegible] of the order. Irradiation in the absence of initiators yielded waxy products. In the presence of benzoyl peroxide a yellowish solid product was obtained.

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The PVF yield increased in both cases with an increase in the radiation dose. Acceleration of the polymerization in the presence of the initiator indicates that the polymerization follows the radical mechanism.

ASSOCIATION: none

SUBMITTED: 11Mar63 DATE ACQ: 28Aug63 ENCL: 00

SUB CODE: CH, MA NO REF SOV: 000 OTHER: 002

Card 2/2

VALIYEV, A.; SAMANOV, Zh.; USMANOV, Kh.

Division and comparison of Cretaceous sediments in the eastern part of the Barsakel'mes trough. Uzb.geol.zhur. 8 no.3:19-23 '64. (MIRA 18:12)

1. Institut geologii i razrabotki neftyanykh i gazovykh mestorozhdeniy Gosudarstvennogo geologicheskogo komiteta SSSR. Submitted Jan. 14, 1964.

VALIYEV, A. A., CAND GEOL-MIN SCI, "[redacted] EXPERIENCE OF [redacted] PALEOMAGNETIC DISINTEGRATION OF [redacted] CENOZOIC MOLASSES OF THE CHUST-PAP ANTICLINE." LENINGRAD, 1960. (ALL-UNION PETROLEUM SCI RES GEOL [redacted] Prospecting INST, ACAD SCI UZSSR. INST OF GEOL AND [redacted] Mining OF PETR AND GAS DEPOSITS). (KL, 2-61, 201).

S/169/62/000/010/014/071
D228/D307

AUTHOR: Valiyev, A.A.

TITLE: Magnetic properties of the continental Genozoic Molasse of certain Fergana districts

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 10, 1962, 14, abstract 10A87 (Dokl. AN UzSSR, no. 4, 1960, 13-16 (summary in Uzbek))

TEXT: The susceptibility $\varkappa$ and the remanent magnetization I_n of the Molasse near the Chust-Papskaya Anticline, the Akbel'skaya Ridge, and the Belesenyk Range are briefly reviewed. The magnetic characteristic variation curves for two profiles are given together with the typical magnitudes of $\varkappa$ and I_n for the remaining districts. It is pointed out that the significance of $\varkappa$ and I_n as stratigraphic correlatives is lessened by the fact that they are not sustained, even on nearby profiles having the dissimilar composition of the supply provinces. Only profiles, in which the composition of the products of the supply provinces is identical and the history of tect-

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Magnetic properties ... S/169/62/000/010/014/071
D228/D307

onic development is close, can be coordinated with respect to the values of χ and I_n.
[Abstracter's note: Complete translation]

Card 2/2

VALIYEV, A.A.

Using the residual magnetic method for dividing and correlating Cenozoic molasses in the Chust-Pap anticline (northern Fergana). Uzb. geol. zhur. no.2:8-16 '60. (MIRA 13:10)

1. Institut geologii AN UzSSR.
(Fergana—Geology, Stratigraphic)
(Rocks, Sedimentary--Magnetic properties)

VALIYEV, A.A.

Paleomagnetic correlation of the Marguzor section of Cenozoic continental molasse strata (northern Fergana). Izv.AN SSSR.Ser.geofiz. no.7:974-976 Jl '60. (MIRA 13:7)

1. Akademiya nauk Uzbekskoy SSR, Institut geologii i razrabotki neftyanykh i gazovykh mestorozhdeniy.
(Marguzor region--Geology, Stratigraphic)
(Rocks--Magnetic properties)

VALIYEV, A.A.

Determination of the position of the earth's poles during the Tertiary period based on studies of remanent rock magnetism in some regions of northern Fergana. Izv. AN SSSR. Ser. geofiz. no.8:1213-1215 Ag '60. (MIRA 13:8)

1. Institut geologii i razrabotki neftyanykh i gazovykh mestorozhdeniy.
(Magnetism, Terrestrial)

24.5300

39129
S/058/62/000/006/069/136
A061/A101

AUTHORS: Bagduyev, G. B., Valiyev, A. A., Kazhlayev, M. A., Kamilov, I. K.

TITLE: The heat conductivity of lead telluride

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 17, abstract 6E143 ("Uch. zap. Dagestansk. un-t", 1961, v. 7, no. 1, 107 - 111)

TEXT: The heat conductivity (λ) of PbTe has been measured in the temperature range of 90 - 600°K. A plane stationary method was applied and the measurement accuracy was 4 - 6%. Up to 360°K, $\lambda \sim 1/T$. At higher temperatures the dependence was weaker, which is explained by the influence of the electron contribution to λ. At temperatures higher than 200°K, the measurement results diverge from those of Ye. D. Devyatkova (RZhFiz, 1957, no. 11, 27619), which can be explained by the presence, in the experiments of the latter, of neglected radiation losses from the lateral sample surfaces.

L. Filippov

[Abstracter's note: Complete translation]

Card 1/1

VALIYEV, A.A.; EGAMBERDYYEV, M.E., kand. geol.-min. nauk, otv. red.; TERNOVSKAYA, R.M., red.; KARABAYEVA, Kh.U., tekhn.red.

[Lithology and paleomagnetism of Cenozoic molasses in northern Fergana]Litologiia i paleomagnetizm kainozoiskikh molass Severnoi Fergany. Tashkent, Izd-vo UzSSSR, 1962. 122 p. (MIRA 15:11)

(Fergana--Rocks, Sedimentary--Magnetic properties)

ACC NR: AR6015870 SOURCE CODE: UR/0275/65/000/012/B007/B008

AUTHOR: Kamilov, I. K.; Kuznetsov, A. A.; Valiyev, A. A.

TITLE: On the investigation of thermoelectric properties of ferromagnetic semiconductors

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 12B59

REF SOURCE: Sb. aspirantsk. rabot. Dagestansk. un-t. Yestestv. i fiz.-matem. n. Mak achkala, 1964, 135-146

TOPIC TAGS: ferromagnetic material, nickel base alloy, zinc base alloy, semiconducting material, thermal EMF, resistivity, thermoelectric property

ABSTRACT: Results of measurements of thermal emf and resistance ρ of nickel-zinc ferromagnetic semiconductors of the $Ni_{(x)}ZnO_{(y)}Fe_2O_3(50)$ type of various composition, are given. An investigation is made of specimens the composition of which is determined by the following values of x and y (in mole %): x = 0—50, y = 50—7.5. In the transition from a zinc ferrite to a nickel ferrite, the values of α increase linearly by a factor of ~ 2 (the measurement temperature is 300K). In the region of 300—600 K, the Kelvin temperature α for all ferrites, except pure nickel ferrites, is negative. The dependence α (T) for the majority of the specimens is weak. In the case when individual ferrites reach the region of magnetic transforma-

Card 1/2 UDC: 539.293:537.32

ACC NR: AR6015870

tion a sharp change in the fluctuation of (T) is observed, which is related to the increasing participation of conductivity electrons in the transitory processes, and also in the change in distances between atoms. The activation energy determined according to $\rho(T)$ increases as ρ increases and is equal to 0.21—0.3 ev for different ferrites. The mobility of the electrons $u = 1/ne\rho$, where the electron concentration n is estimated from α, is equal to 10^{-4}—10^{-3} $cm^2/v \cdot sec$. The effective mass of carriers is estimated to be equal to 2—7. The methodology of the measurements is described. [Translation of abstract] V. K.

SUB CODE: 09,20

Card 2/2

VALIYEV, A. E.

N. E. Fedoseev - odin iz pervykh marksistov v Rossii /N. E. Fedoseev, one of Russia's first Marxists./ Kazan, Tatgosizdat, 1952. 168 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 5, August 1953

VALIEV, A. V. ed.

Sheep breeding 2. izd.isp.r. i dop. Moskva, Gos. izd-vo selkhoz. lit-ry, 1952. 287 p.

1. Sheep breeding
2. Sheep - Russia

L 45723-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6026418 (A) SOURCE CODE: UR/0249/66/022/001/0012/0015

AUTHOR: Shakhtakhtinskiy, G. B.; Valiyev, B. S.; Aslanov, G. A.

ORG: Chemistry Institute (Institut khimii)

33
B

TITLE: Arsenate method of iodometric determination of yttrium in the presence of scandium

SOURCE: AN AzerbSSR. Doklady, v. 22, no. 1, 1966, 12-15

TOPIC TAGS: yttrium, scandium, arsenate, quantitative analysis

ABSTRACT: A new method has been developed for determining yttrium iodometrically as the arsenate in the presence of scandium (at least 0.3 mg of Y in the presence of up to 20 mg of Sc per 25 ml of solution). In order to precipitate the yttrium ion with arsenate ions, heating of the solution should be discontinued immediately after the appearance of turbidity, since further heating leads to the formation of an amorphous precipitate which contains scandium. If such a precipitate does form, 5 to 6 drops of 1 N HCl should be added; this dissolves the amorphous scandium precipitate, but the crystalline yttrium arsenate is not affected and deposits quantitatively. Yttrium as the arsenate is finally determined iodometrically. The analysis lasts about 40 to 50 min. The paper was presented by Academician AN AzerbSSR Nagiyev, M. F. Orig. art. has: 2 tables.

SUB CODE: 07/ SUBM DATE: 09Apr65/ ORIG REF: 005/ OTH REF: 002

Card 1/1 JLR

RASHCHEPKIN, K.Ye.; RAMEYEV, M.K.; VALIYEV, D.M.

Consolidated UIM-14 insulation machine. Transp. i khran. nefti no.5:8-9 '63. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu nefti i nefteproduktov.

VALIYEV, G.T. (Ufa)

Acquainting students with the work of the "electric shepherd." (MIRA 15:11)
Fiz. v shkole 22 no.2:77 Mr-Ap '62.
(Electric fences)

14(5)

SOV/92-59-2-31/40

AUTHOR: Valiyev, K., Foreman

TITLE: We Will Properly Implement the Resolution Adapted at the Twenty First Congress of the Communist Party of the Soviet Union (Dostoyno vypolnim resheniya XXI s"yezda KPSS)

PERIODICAL: Neftyanik, 1959, Nr 2, pp 31 (USSR)

ABSTRACT: The author states that his drilling crew handles a number of oil wells scattered over a large territory including several administrative districts of the Tatar Republic. Some of these wells are 50-60 km from the oilfield bulk plant and 70-80 km from the town of Al'met'yevsk. This makes the work of the crew extremely difficult. Nevertheless, the discipline, the solidarity, and the high spirit of crew members help to overcome all difficulties, and to gain second place in the All-Union socialist competition contest. The resolution adopted at the Twenty First Congress of the Communist Party encouraged oilmen, stimulated their efforts, and as a result, permitted them to undertake an obligation to produce 2450 tons of petroleum in excess of the target figure set in the production plan. The drilling crew under discussion has also pledged to raise the productivity of labor, to restore four depleted wells, and to maintain the same

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We Will Properly Implement (Cont.)
exploitation ratio.

ASSOCIATION: Promysel No 3 NPU Al'met yevneft' (The No. 3 Oilfield of the Al'met'yevneft' Petroleum Production Administration)

Card 2/2

VALIYEV, K.

Organization and remuneration of machinery operators on collective farms under new conditions. Sots. trud. no.9:64-70 '58. (MIRA 11:10)

(Farm mechanization) (Wages)

Valiyev, K

VALIYEV, K.

Wages of combine operators of machine-tractor stations. Sots. trud no.2:134-137 F '58. (MIRA 11:1)

1. Zamestitel' nachal'nika Upravleniya normirovaniya truda i zarplaty Ministerstva sel'skogo khozyaystva RSFSR.
(Machine-tractor stations) (Wages)

VALIYEV, K. A.

56-4-34/54

AUTHOR: Valiyev, K. A.,

TITLE: Magnetic Resonance on Nuclei with Paramagnetic Atoms (Magnitnyy rezonans na yadrakh paramagnitnykh atomov) (Letter to the Editor)

PERIODICAL: Zhurnal Eksperim. i Teoret Fiziki, 1957, Vol. 33, Nr 4, pp. 1045-1047, (USSR)

ABSTRACT: The probability of the nuclear relaxation transitions for the ions Cr^{3+} (odd number of electrons) and the ions Ti^{3+} (even number of electrons) was calculated. From the calculations follows that in chromium, at the temperature of liquid air, the line width of the nuclear resonance does not exceed some oersted and that the absorption can be observed by modulation of the constant magnetic field. For vanadium the time of the spin lattice relaxation is short and the nuclear resonance can only be observed at low temperatures. Further the probability of the nuclear relaxation transitions in the ethyl sulfates of rare earths was calculated. The mathematical cource of calculation is separately published.

ASSOCIATION: Kazan State University (Kazanskiy gosudarstvennyy universitet)

SUBMITTED: June 21, 1957

AVAILABLE: Library of Congress

Card 1/1

VALIYEV, K.A.

Nuclear magnetic resonance in salts of the rare earth elements.
Uch. zap. Kaz. un. 117 no.9:145-148 '57. (MIRA 13:1)

1.Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.
Kafedra eksperimental'noy i teoreticheskoy fiziki.
(Rare earth salts) (Nuclear magnetic resonance)

VALIYEV, K.A.

Magnetic resonance spectra and probabilities of magnetic dipole transitions on nuclei of paramagnetic atoms. Uch. zap. Kaz. un. 117 no.9:149-153 '57. (MIRA 13:1)

1.Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina. Kafedra eksperimental'noy i teoreticheskoy fiziki.
(Nuclear magnetic resonance) (Dipole moments)

VALIYEV, K.A., Cand Phys-Math Sci --(diss) "Magnetic resonance on the nuclei of paramagnetic ions." Kazan', 1958. 6 pp (Min of Higher Education USSR. Kazan' Order of Labor Red Banner State Univ im V.I.Ul'yanov-Lenin). 120 copies (KL,20-58, 92)

SOV/126-6-2-1/34

AUTHOR: Valiyev, K. A.

TITLE: Spin-lattice Relaxation and Nuclear Magnetic Resonance in Salts of Rare Earth Elements (Spin-reshetochnaya relaksatsiya i yadernyy magnitnyy rezonans v solyakh redkozemel'nykh elementov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 193-202 (USSR)

ABSTRACT: The possibility of experimental studies of nuclear magnetic resonance using the nuclei of paramagnetic ions of rare earth elements is discussed. It is well known that the experimental observation of the nuclear magnetic resonance depends upon the width of the absorption line. In the magnetically weak crystals of rare earth salts the line width is largely determined by the spin-lattice interaction of ions. In the present paper the author calculates the probabilities of relaxation transitions between hyperfine sublevels in ions of ethyl sulphates of rare earths. The calculated probabilities for relaxation transitions for nuclear spins are compared with the probabilities for relaxation transitions for electron spins. For the majority of ions with an odd number of 4f-electrons the probabilities of nuclear

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SOV/126-6-2-1/34

Spin-lattice Relaxation and Nuclear Magnetic Resonance in Salts of Rare Earth Elements

relaxation are 100 times smaller than the probabilities in the case of electrons. For ions with an even number of 4f-electrons the probabilities are down by a factor of 10^5 as compared with the electron case. It is shown that in rare earth salts the effect can only be observed at liquid helium temperatures. Explicit formulae are given for the relaxation probabilities of the following ions: Sm^{3+}, Er^{3+}, Dy^{3+}, Tb^{3+}, Ho^{3+}, Tm^{3+}, Yb^{3+}, Eu^{3+}. The work was supervised by S. A. Al'tshuler. There are 2 tables and 11 references, 4 of which are Soviet, 2 German, 5 English.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: November 24, 1956

Card 2/2 1. Perturbation theory--Mathematical analysis 2. Nuclear spins 3. Rare earth salts--Temperature factors 4. Ethylsulfates--Properties

SOV/126-6-5-2/43

AUTHOR: Valiyev, K. A.

TITLE: On Magnetic Resonance of Nuclei of the Iron-Group Atoms in Ionic Crystals (O magnitnom rezonanse v ionnykh kristallakh na yadrakn atomov elementov gruppy zheleza)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 5, pp 776-780 (USSR)

ABSTRACT: The author discusses nuclear and electron magnetic resonances of paramagnetic vanadium and chromium atoms in ionic salts. It was found that even at temperatures of the crder of $1^{\circ}K$ the electron spin relaxation contribution (A_e) predominates over the nuclear relaxation part (A_N) in the expression for the total width of a magnetic resonance line: $\gamma = A_e + A_N$. Calculations showed that, in chromium salts at $2^{\circ}K$, A_e/A_N for Cr^{3+} ions is of the order of 10^4. For V^{3+} ions in vanadium salts the same ratio is of the order of 10^5 at $2^{\circ}K$. A table on p 780 gives the calculated values of the electron (τ_e, in μsec) and nuclear (τ_N, in sec) relaxation time constant at 90, 64.4 and 2.04°K of Cr^{3+} ions in chrome alums. These values indicate that

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SOV/126-6-5-2/43

On Magnetic Resonance of Nuclei of the Iron-Group Atoms in Ionic Crystals

nuclear magnetic resonance in chromium (spin S=1) and vanadium (S=3/2) may be observed only at liquid-helium temperatures. The paper is entirely theoretical.
Acknowledgment is made to S. A. Al'tshuller who directed this work.
There are 2 figures, 1 table and 8 references, 2 of which are Soviet, 4 English, 1 Dutch and 1 translation.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet
(Kazan' State University)

SUBMITTED: January 14, 1957

Card 2/2

AUTHORS: Valiyev, K. A., Bashkirov, Sh. Sh. SOV/56-35-1-54/59

TITLE: A Stimulated Amplifier of Radio-Frequency Signals on the Basis of the Hyperfine Sublevels of Paramagnetic Atoms (Stimulirovannyy usilitel' radiochastotnykh signalov na sverkhtonkikh podurovnyakh paramagnitnykh atomov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 35, Nr 1, pp. 302 - 303 (USSR)

ABSTRACT: The idea of applying paramagnetic crystals as working piece of stimulated amplifiers for centimeter waves was conceived by N.Bloembergen (Blombergen) (Ref 1). Such an amplifier was constructed on the basis of the salts of the Gd^{3+} ion, using the dipole-transitions between the sublevels of the energy of the electron spins of the paramagnetic Gd^{3+} ions. Some previous papers concerning this subject are mentioned. The authors of this paper wish to draw attention to the possible amplification of 10^8-10^9 Hertz signals by application of the transitions between the hyperfine sublevels of the paramagnetic ions. As an example, the crystals of the salts of the divalent ions of Cu^{64} (ground state ^2D, S= 1/2, I= 1) are investigated. The con-

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clusions obtained in this paper seem to be applicable also to other paramagnetic atoms. The scheme of the spin sublevels of Cu^{++} in a strong magnetic field is shown in a figure, and also the numerical values of the probabilities of the relaxation transitions are given. In pulsed schemes with pulses of 10^{-4} sec, the power yield may attain values of $\sim 10^{-3}$ W. The authors thank S.A.Al'tshuler for the discussion of results. There are 1 figure and 6 references, 1 of which is Soviet.

ASSOCIATION: Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute)

SUBMITTED: April 15, 1958

24(5) SOV/56-35-3-18/61

AUTHORS: Bashkirov, Sh. Sh., Valiyev, K. A.

TITLE: On the Polarization of the Nuclear Moments and the Width of Nuclear Resonance Lines in Crystals of Cu^{++}-Ion Salts (O polyarizatsii yadernykh momentov i shirine liniy yadernogo rezonansa v kristallakh soley iona Cu^{++})

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 3, pp 678-684 (USSR)

ABSTRACT: In the introduction several papers dealing with this subject, which have already been published (Refs 1-7), are discussed (as e.g. on the investigation of the degree of polarization of the magnetic moments at 1 - 4°K, experiments carried out concerning the polarization of nuclei with the aid of electron transitions; Feher (Fekher) investigated the nuclear polarization of paramagnetic atoms; investigation of transition probabilities (Refs 5-7)). The present paper aims at calculating the probabilities of nuclear relaxation transitions in Cu^{++}-ion salts $a_{m,m-1}$ and the probability of electronic transitions $A_{M,M-1}$ (M = magnetic quantum number of electron spin) (such

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On the Polarization of the Nuclear Moments and the Width of Nuclear Resonance Lines in Crystals of Cu^{++}-Ion Salts

calculations of nuclear- and electronic relaxation transitions for S = 1/2 and I = 1/2 have already been carried out by Abraham (Abragam) (Ref 2)). The amount of nuclear polarization occurring as a result of the saturation of electron- and nuclear resonance transitions is calculated. The chapters of this paper deal with the following subjects: 1) Introduction; 2) Probabilities of nuclear relaxation transitions (ansatz for transitions between hyperfine sublevels: $\mathcal{H} = \mathcal{H}_{OL} + \lambda(\vec{L}\vec{S}) + + AI_zS_z + B(I_xS_x + I_yS_y)$; $\lambda(\vec{L}\vec{S})$ - spin-orbital interaction, $\mathcal{H}_{OL}$ - an operator, ansatz for H_{OL} according to Kronig (Ref 8)); 3) Polarization of Cu^{64} nuclei in paramagnetic salts; (I = 1) 4) On the breadth of paramagnetic resonance lines on the nuclei of paramagnetic atoms - the effect of electron and nuclear relaxations on the broadening of lines is considered. There are 1 figure and 15 references, 5 of which are Soviet.

SOV/56-35-3-18/61

On the Polarization of the Nuclear Moments and the Width of Nuclear Resonance Lines in Crystals of Cu^{++}-Ion Salts

ASSOCIATION: Kazanskiy gosudarstvennyy pedagogicheskiy institut (Kazan' State Pedagogical Institute)

SUBMITTED: March 2, 1958

Card 3/3

SOV/56-35-4-1

24(3)
AUTHORS: Al'tshuler, S. A., Valiyev, K. A.

TITLE: On the Theory of Longitudinal Relaxation in Liquid Solutions of Paramagnetic Salts (K teorii prodol'noy relaksatsii v zhidkikh rastvorakh paramagnitnykh soley)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 4, pp 947 - 958 (USSR)

ABSTRACT: In their introduction the authors discuss the papers already published and dealing with the theory of longitudinal (spin-lattice) relaxation in paramagnetic salt solutions; in the USSR B.M.Kozyrev (Ref 4) is occupied with this problem. The present paper deals with theoretical investigations in salt solutions of elements of the groups of iron and rare earths. Calculations are based on the assumption that, like in the case of ion crystals, the liquid solution contains paramagnetic complexes. The normal vibrations of these complexes are disturbed by the Brown (Broun) motion; this causes variation of the

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electric field in which the paramagnetic ions occur. This variation, in turn, influences the spin-orbital interaction of the electrons of the paramagnetic ion, and may lead to a re-orientation of its magnetic moment, causing relaxation transitions between various steady states. It is shown that, if the interval between the low Stark (Shtark) ion sublevels is $\delta \approx 2kT$, there exist two relaxation times, which are caused by 1) transitions between various Stark (orbit)-levels without changing the direction of spin, and 2) transitions within a Stark level with changed spin orientation. The breadth of the paramagnetic resonance line is due to transitions of the first type. Theoretical results are in good agreement with experimental data concerning copper-, chromium-, and manganese salt solutions. In conclusion, the authors thank B.M.Kozyrev for discussing results. There are 3 figures and 21 references, 11 of which are Soviet.

On the Theory of Longitudinal Relaxation in Liquid Solutions of Paramagnetic Salts

SOV/56-35-4-17/58

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University) Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute)

SUBMITTED: March 18, 1958

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SOV/56-36-6-18/66

24(2)

AUTHOR: Valiyev, K. A.

TITLE: Contribution to the Theory of Lattice - Spin Relaxation (K teorii reshetochnoy spinovoy relaksatsii)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, pp 1743 - 1749 (USSR)

ABSTRACT: This article gives a theoretical analysis of the relaxation of systems containing two kinds of spins which influence each other and have widely differing relaxation periods. For this purpose the method of correlation functions for rapidly variable spin values of the system is used. In the introduction to the present article reference is made to the following papers: A paper by J. Waller on the theory of relaxation in the magnetic interaction of particles of cubic crystals, a paper by N.Bloembergen on the relaxation of dipole-like interacting particles, which is of particular importance for the present paper because it is shown that Bloembergen's theory also describes the processes of spin relaxation in molecules of diamagnetic crystals, a paper by S. A. Al'tshuler on

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lattice relaxation in liquids, especially of compounds of the form XY_6, where X denotes a paramagnetic ion, Y - a molecule of the solvent or an anion. The present paper describes the relaxation process for a kind of spin which is connected with exchange- or dipole forces with spins of a different kind. Determination of the latter is, however, carried out independently of the former, as in their case the relaxation periods are very small. Experiments concerning the hyperfine structure of the spectra of magnetic nuclear resonance confirm the existence of an interaction between the quadrupole moment of the nuclei with the electric field of the surrounding nuclei. An especially interesting example is that of the relaxation of the nuclear spins of paramagnetic atoms caused by hyperfine interactions with the spins of the electron shell of the same atom. There follows an analysis of rapidly variable spin systems, and reference is made to a paper by A. I. Rivkind, which explains the relaxation of protons in liquid solutions of paramagnetic salts. In this connection, the variation of the quantization of electron spins with respect to the external statistical magnetic field plays an important part. Calcula-

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SOV/56-36-6-18/66

tions concerning the quadrupole broadening of the lines of proton resonance in liquids follow. Also resonance phenomena in spin-lattice relaxation as well as the lattice relaxation of nuclei belonging to paramagnetic atoms are analyzed. The author finally thanks Professor S. A. Al'tshuler and Professor B. M. Kozyrev for discussions. There are 17 references, 4 of which are Soviet.

ASSOCIATION: Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute)

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21(1)

AUTHOR: Valiyev, K. A.

TITLE: The Theory of Spin-lattice-quadrupole Relaxation of Nuclei in Liquid Solutions of Diamagnetic Salts (Teoriya spin-reshetochnoy kvadrupol'noy relaksatsii yader v zhidkikh rastvorakh diamagnitnykh soley)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1(7), pp 109-117 (USSR)

ABSTRACT: The calculations were carried out under the assumption that stable complexes originate in the solutions around the ions. These complexes consist of the molecules of the solvent, or simultaneously of molecules of the solvent and of anions (or cations). The first part deals with the mechanism of spin-lattice relaxation in diamagnetic ion solutions. The ion to be investigated is assumed to be in the center of a mixed complex, which e.g. partly consists of water molecules and partly of anions. In the center of the mixed complex, a strong inhomogeneous electric field is assumed to exist there which causes a quadrupole [illegible] separation of the spin levels of the ion nucleus. This separation is superimposed over the Zeeman separation. Under real conditions, mixed and not

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mixed complexes are present in the solution at the same time. In the next parts, the following factors are calculated and discussed: the energy of the interaction of the lattice and of the spins of the nuclei with an electric dipole moment, the probability of relaxation transitions, the relaxation time T_1, and the width of lines, the quadrupole relaxation of the nuclear spin caused by a diffuse rotation of a mixed complex. The author arrives at the following conclusions: 1) The time of spin-lattice relaxation of the spins of the nuclei with large electric quadrupole moment in mixed complexes is in the order of magnitude of 10^{-6} to 10^{-7} sec. This corresponds to a line width of $\sim 10^6$ cycles. A line of such a width evidently cannot be observed by experiment. Therefore, the intensity of experimentally observable lines of the magnetic resonance on nuclei with a high quadrupole moment is proportional to the number of complexes only consisting of water. 2) For aqueous complexes of the ions Al^{3+} and Ga^{3+}, a good agreement is obtained between the measured and calculated values of the resonance line widths. It is known from chemical investigations that the hydrate complexes of the

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ions Al^{3+} and Ga^{3+} are very stable. This confirms the correctness of the model used for calculations in the present paper if only the life-time of the complexes is longer than the spin-lattice relaxation of the nuclei. 3) The calculated and the experimentally observed value of the resonance line width do not agree in the case of the ions Na^+, Br^-, J^-. This is apparently connected with the weak stability of the complexes formed by the ions Na^+, Br^- and J^- with water: The experimentally observed line width of the nuclei Na^{23}, Br^{79}, Br^{81} and J^{127} is not connected with the time of spin-lattice relaxation but with the life-time of the complex itself. There are 1 table and 15 references, 6 of which are Soviet.

ASSOCIATION: Kazanskiy gosudarstvennyy pedagogicheskiy institut (Kazan' State Pedagogical Institute)

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AUTHOR: Valiyev, K. A.

TITLE: The Theory of the Quadrupole Relaxation of Nuclear Spins in Liquids

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 4, pp. 1222 - 1232

TEXT: The present paper theoretically investigates the line width of the nuclear-magnetic resonance in liquids, in which the atoms investigated have a quadrupole moment and form no stable complexes with other particles of the liquid. These conditions are e.g. realized in the investigation of the quadrupole resonance of nuclear spins of halide ions in aqueous electrolyte solutions. The water molecules may (with known accuracy) be considered to be point charges. The calculated line width is influenced by the selection of the effective molecule charge, but not the physically essential dependence of the line width on the temperature and nature of the thermal particle motion. Analogous conditions prevail also in the melts of metals and ion salts. The author assumes the thermal

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motion of the liquid particles to be a free translational diffusion. This assumption is satisfied best for liquids at a temperature that is considerably higher than the melting point. It is in such a liquid that a single ion is now investigated, the nucleus of which has an electric quadrupole moment. The remaining particles are considered to be point charges which are chaotically distributed around the ion investigated, so that an inhomogeneous resulting E-field acts upon the nucleus of this ion. The relative position of the individual particles changes continuously due to diffusion, so that the E-field acting upon the one ion is a random time function. The E-field influences its spin via the quadrupole moment of the nucleus; the consequence is a random shifting of the sublevels of nuclear spin, so that a secular broadening of resonance lines and a broadening caused by relaxation transitions between the sublevels occurs. First, the theoretical method is explained and expressions are obtained for the energy of the quadrupole moment of the nucleus in the field of the point charges. The next parts of the paper deal with the correlation function and the relaxation times T_2 and T_1 (T_2 characterizes the secular line broadening, T_1 - the non-secular line broadening caused by a

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shortening of the lifetime of the spin in a certain state because of relaxation transitions between the states. T_2 and T_1 are defined by (6) and (11)). For the two times formulas (28) and (32) are then obtained, after which the special case of aqueous electrolyte solutions is studied and numerical calculations and comparisons are discussed. T_2^{-1} /T is obtained (- viscosity of the liquid); this is in good agreement with measurements of T_2^{-1} for the I^{127} nuclear spin in aqueous solutions of NaI and KI salts. Also the conditions in metal melts and melts of ion salts are discussed, and numerical measuring results are compared with theoretical considerations. S. A. Al'tshuler, G. V. Skotskiy, and A. A. Kokin are mentioned. There are 18 references: 6 Soviet, 7 US, 1 Japanese, and 4 British.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Institute of Physics and Technology of the Kazan' Branch of the Academy of Sciences, USSR)

SUBMITTED: October 23, 1959

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VALIYEV, K.A.

Theory of the line widths of vibration and Raman spectra of molecules in dipole liquids. Opt.i spektr. 11 no.4:465-470 O '61. (MIRA 14:10)

(Molecular spectra)

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Nuclear magnetic resonance and structure of aqueous solutions of electrolytes. Zhur.fiz.khim. 35 no.10:2265-2274 O '61. (MIRA 14:11)

1. Kazanskiy pedagogicheskiy institut.
(Electrolyte solutions)

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Theory of the dissipation of the energy of molecular oscillations in fluids. Zhur. eksp. i teor. fiz. 40 no.6:1832-1837 Je '61. (MIRA 14:8)

1. Kazanskiy pedagogicheskiy institut.
(Molecular dynamics)

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24.2110 (1138, 1147, 1164)

AUTHORS: Valiyev, K. A., Zaripov, M. M.

TITLE: Theory of spin-lattice relaxation in liquid solutions of electrolytes

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 3(9), 1961, 756-761

TEXT: The spin-lattice relaxation of hydrated metal ions in aqueous solutions, caused by interaction of the ionic spin with the internal oscillations of the complex, has been studied by the methods of the theory of random processes. The energy of interaction of the spin $\vec{S}$ of the central ion of the complex with the oscillations Q_j can usually be represented as a series: $\mathcal{H} = \mathcal{H}^{(1)} + \mathcal{H}^{(2)} + \ldots = \sum_j P_j(\vec{S})Q_j + \sum_{ij} P_{ij}(\vec{S})Q_iQ_j + \ldots$ (1), where $P_j(\vec{S})$ and $P_{ij}(\vec{S})$ are quadratic functions of the components of the vector $\vec{S}(S_x, S_y, S_z)$. S. A. Al'tshuler and K. A. Valiyev (ZhETF, 35, 947, 1958) calculated the relaxation rate of the spin $\vec{S}$, which is due to the

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